

Wing Tips

THE AEROSPACE EDUCATION NEWSLETTER OF NEW YORK WING

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WRIGHT BROTHERS TEST A KITE AND THREE GLIDERS BEFORE TRYING POWERED FLIGHT

Orville Wright made the first successful flight in a powered airplane on December 17, 1903 in a 27 mile per hour headwind. Years later, he acknowledged that, knowing what he had subsequently learned about aviation, he would never attempt to fly an untried aircraft in a 27 mile an hour wind.

The Wrights understood, early on, that in order to turn an aircraft, you have to bank it. Just how to do this was the first major problem that they had to solve. Wilbur hit upon the idea of wing-warping while idly twisting a small cardboard box. To test this method of achieving lateral control, he built and flew a bi-plane kite that had a 5 foot wingspan. He had lines from the leading edge of each wingtip attached to control sticks that he held. By manipulating the sticks from the ground, he was able to maneuver the kite in the air. The year was 1899.

The following year, the Wrights built a man-carrying glider which they took to Kitty Hawk to test. It was a bi-plane with a 27½ foot wingspan and featured a canard, or front elevator, which the brothers called a horizontal rudder. Wing-warping provided lateral control. Wilbur made some glides with it, proving that the control system worked as planned. Most of the time, however, they flew it as a kite with about 75 pounds of chains aboard because the craft was unable to support the weight of a man (they weighed about 140 pounds) when the wind was not strong enough. They returned home to Dayton, pleased with their success, but puzzled as to why their glider did not fly as well as they had expected it to.

In 1901, the Wright brothers were back at Kitty Hawk with a new glider. It had a wingspan of 22 feet. They had increased the curvature of the wing camber, but this made the glider difficult to control. When they reduced the curvature, it responded beautifully. Then they decided to try real turns, but ran into a serious problem. The glider would yaw in the direction opposite

to that of the turn. They had built a bigger and better glider than anyone had previously built, but it wasn't good enough. It didn't have a tail.

The 1902 glider had a wingspan of 32 feet. The curvature of the wing camber was even less than before and this glider sported a twin fixed vertical tail. When the glider banked into a turn, the fixed tail started a sequence of events that made it impossible to return to straight and level flight. When they replaced the fixed tail with a moveable one, their problems were solved. This final version was the aircraft that the Wright brothers patented.

All they had to do now, was put an engine in their aircraft and they would achieve the dream of powered flight. But, that's another story and it was not as easy to do as they had thought.

WING DIRECTOR OF AEROSPACE EDUCATION PROMOTED

New York Wing Director of Aerospace Education, Julian Wilder was recently promoted to Lieutenant Colonel. In addition to his duties in aerospace education, he has volunteered to take on the additional duty of New York Wing Public Affairs Officer.

UPCOMING ANNIVERSARIES

We have been putting a lot of emphasis on the 100th Anniversary of the Wright Brothers' First Flight on December 17, 2003. While this is a major event that all of us should plan on participating in, there are other anniversaries of importance to us.

Coming up first, is the 60th Anniversary of Civil Air Patrol on December 1, 2001. It happens to be on a Saturday, so there is the opportunity to plan a very special event. Hanukkah does not start until the evening of the 9th and Thanksgiving was the previous weekend. Therefore, there is little to interfere with December 1, 2001 becoming a big day for CAP as long as planning starts early and is co-ordinated with other units.

Another important anniversary will be May 20th 2002. This will mark the 75th anniversary of Lindbergh's solo, non-stop flight from New York to Paris in 1927.

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